

Operation and Maintenance Manual

Rough Terrain Crane
Model TR-500XL-3

Applicable Serial No. 540239 ~

▲CAUTION: Read this manual before operating the crane. Save this manual for future reference.

TADANO LTD.

▲ Be Careful when Traveling with a Lifted Load

Traveling with a lifted load can increase the possibility of overturn, and should be avoided.

If conditions absolutely require traveling with a lifted load, follow all instructions in the manual, and drive the machine with utmost care.

▲ Do Not Operate the Crane When Traveling with a Lifted Load

Operating the crane while traveling with a lifted load is very dangerous, and must be avoided. If the load must be moved, first stop traveling, and only then operate the crane.

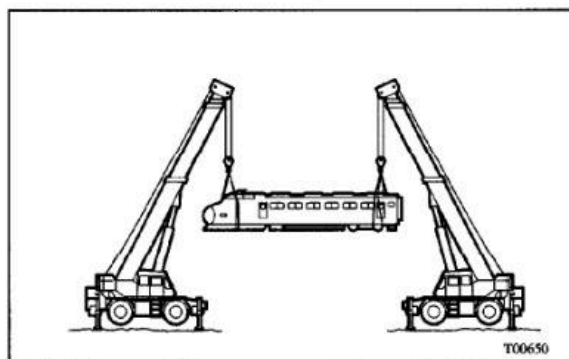
Rules for Operation (Special Operation)

▲ Be Cautious in Multi-Crane Operation

Lifting a load with two or more cranes can be dangerous. In these operations, loads are lifted at points other than directly above the center of gravity, and there is possibility of the load falling, the machine being overturned, or the boom failing.

In multi-crane lifting operations, be absolutely careful, and adhere to the following instructions:

- Meet with personnel to determine the proper working procedure and lift strategy.
- Assign a work leader, and follow instructions.
- Equip every person concerned with an appropriate communications device.
- Set each crane level on firm ground with the outriggers fully extended.
- The cranes used must have the same performance, characteristics and sufficient capacity for handling the load. Make sure that the cranes have the same settings for the boom length, boom angle, and number of rope parts.
- Lift the load so that the wire rope(s) of each crane are only subjected to vertical line pulls.
- Attempt to rig the load so that all the cranes are loaded equally.
- To move the load, use only the winches and booms. Swinging operations should be avoided. Do not perform hoisting, elevating (or telescoping) of the boom or swinging at the same time.
- To protect against overloading, operate the separate cranes simultaneously.



Traveling Procedure

⚠ WARNING

⚠ This section describes briefly the essential steps for traveling the crane. For detailed information on the controls, refer to the appropriate pages in this section. Do not travel until you completely understand all the instructions and information given in this section.

⚠ The precautions to be observed when traveling are described in the "Safety" section at the beginning of this manual. Carefully read the section before traveling the crane.

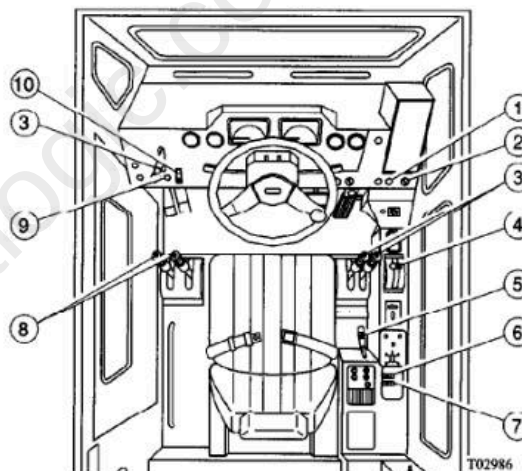
⚠ If there is anything abnormal with the crane when traveling, stop immediately, check and locate the cause of trouble, and arrange to repair any faulty components. To prevent accidents, do not travel until the repairs have been completed.

Preparatory Steps

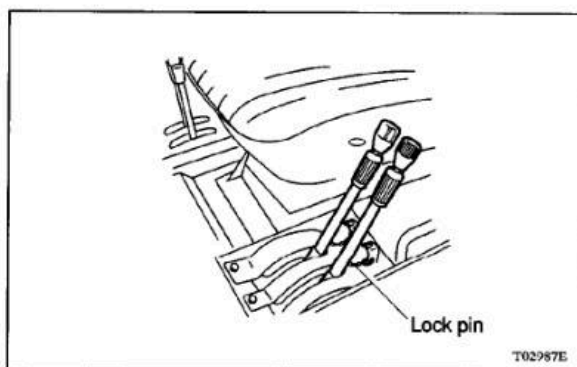
1. Perform pre-operational inspections.
2. Enter the cab and adjust the seat, control levers, steering wheel so that you can easily operate the levers and all other controls. Fasten the seat belt.
3. Perform pre-start checks and start the engine.
4. Let the engine warm up. Make sure that all meters and monitor displays are normal and that the engine is not making abnormal sounds.
5. Set the crane in the following traveling style:
 - (1) Stow the auxiliary hook block in its stowing position.
 - (2) Stow and lock the jib and single top in their stowing positions.
 - (3) Stow the main hook block in the front side of the frame.
 - (4) Fully retract the boom and place it over the front. Set the boom angle to its lowest angle.
 - (5) Lock the upper swing structure with the swing brake and swing lock pin.
 - (6) Fully retract and stow the outriggers. Lock the outrigger beams with the lock pins.

6. Make sure that the control levers and switches are in the following positions:

- ① Swing brake switch "ON"
- ② PTO switch "OFF"
- ③ Control levers (main hoist, boom telescoping and boom elevating) Neutral
- ④ Gearshift lever "N"
- ⑤ Swing lock lever "LOCK"
- ⑥ Drive mode select switch "2-WHEEL (Hi)"
- ⑦ Swing free/lock select switch "LOCK"
- ⑧ Control levers (auxiliary hoist and swing)
Leaned backward after locked in neutral positions
- ⑨ Parking brake switch "PARK"
- ⑩ Steering mode select switch "2-WHEEL"



◆ Press in the knobs for hoist control levers, boom elevating control lever, boom telescoping control lever, and swing control lever, to their minimum lengths. Put lock pin in the auxiliary hoist control lever and swing control lever and lean them backward.



[Example 2: Outriggers extended to middle (21' 11 3/4")]

TR-500XL RATED LIFTING CAPACITY CHART (IN POUNDS)
ON OUTRIGGERS MID EXTENDED 21' 11 3/4" (6.7m) SPREAD
— 360° ROTATION —

Load Rating in Feet	Beam Length in Feet							Beam Rating in Feet	Beam Length in Feet	
	10.0 (3.0)	11.0 (3.3)	12.0 (3.7)	13.0 (4.0)	14.0 (4.3)	15.0 (4.6)	16.0 (4.9)		18.0 (5.5)	20.0 (6.1)
10	100,000	88,000	77,000	66,000	55,000	44,000	33,000	22,000	11,000	0
12	90,000	79,000	68,000	57,000	46,000	35,000	24,000	13,000	2,000	0
14	80,000	70,000	60,000	50,000	40,000	30,000	20,000	10,000	0	0
16	70,000	61,000	52,000	43,000	34,000	25,000	16,000	7,000	0	0
18	60,000	52,000	44,000	36,000	28,000	20,000	12,000	4,000	0	0
20	50,000	43,000	36,000	29,000	22,000	15,000	9,000	1,000	0	0
22	40,000	34,000	28,000	22,000	16,000	11,000	6,000	0	0	0
24	30,000	25,000	20,000	16,000	12,000	8,000	4,000	0	0	0
26	20,000	16,000	13,000	10,000	8,000	6,000	3,000	0	0	0
28	10,000	8,000	6,000	5,000	4,000	3,000	2,000	0	0	0
30	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0	0

A: Minimum beam extension (in feet) for indicated load (in pounds)

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[Example 3: Outriggers extended to middle (12' 1/2")]

TR-500XL RATED LIFTING CAPACITY CHART (IN POUNDS)
ON OUTRIGGERS MID EXTENDED 18' 1/2" (5.5m) SPREAD
— 360° ROTATION —

Load Rating in Feet	Beam Length in Feet							Beam Rating in Feet	Beam Length in Feet	
	10.0 (3.0)	11.0 (3.3)	12.0 (3.7)	13.0 (4.0)	14.0 (4.3)	15.0 (4.6)	16.0 (4.9)		18.0 (5.5)	20.0 (6.1)
10	100,000	88,000	77,000	66,000	55,000	44,000	33,000	22,000	11,000	0
12	90,000	79,000	68,000	57,000	46,000	35,000	24,000	13,000	2,000	0
14	80,000	70,000	60,000	50,000	40,000	30,000	20,000	10,000	0	0
16	70,000	61,000	52,000	43,000	34,000	25,000	16,000	7,000	0	0
18	60,000	52,000	44,000	36,000	28,000	20,000	12,000	4,000	0	0
20	50,000	43,000	36,000	29,000	22,000	15,000	9,000	1,000	0	0
22	40,000	34,000	28,000	22,000	16,000	11,000	6,000	0	0	0
24	30,000	25,000	20,000	16,000	12,000	8,000	4,000	0	0	0
26	20,000	16,000	13,000	10,000	8,000	6,000	3,000	0	0	0
28	10,000	8,000	6,000	5,000	4,000	3,000	2,000	0	0	0
30	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0	0

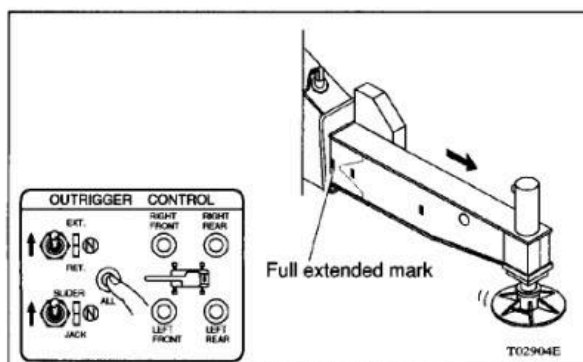
A: Minimum beam extension (in feet) for indicated load (in pounds)

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2. Flick the slider/jack selector switch to the SLIDER position. Keeping the extend/retract selector switch pressed to the EXT. position, press the collective control button to extend all the outrigger beams fully.

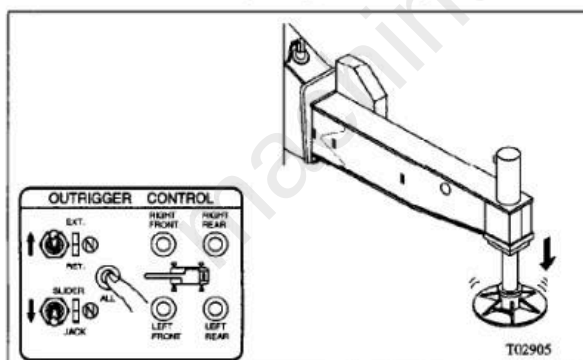
◆ Adjust the operation speed by pressing down the accelerator pedal.

◆ See the outrigger extension width by the full extended mark.



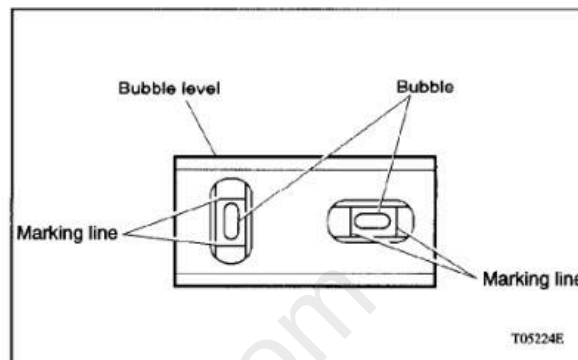
3. Insert all four lock pins in the outrigger pin holes to lock the outrigger beams in place.

4. Flick the slider/jack selector switch to the JACK position. Keeping the extend/retract selector switch pressed to the EXT. position, press the collective control button to extend all the jack cylinders fully.



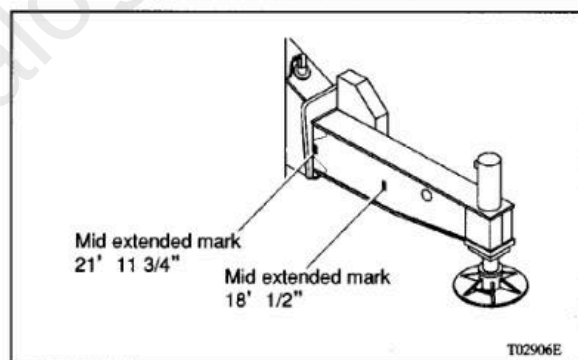
5. After all four jack cylinders are fully extended, return the slider/jack selector switch and the extend/retract selector switch to the neutral position.

6. Use the bubble levels to make sure that the crane is level. If the crane is not level, refer to the "Level Adjustment" section for detailed instructions on leveling the crane.



Middle Extension Procedure

1. By the same procedure with the outriggers' full extension procedure, extend outrigger beams to the middle extension marks (21' 11 3/4" or 18' 1/2").



2. Insert all four lock pins in the outrigger pin holes to lock the outrigger beams in place.

3. By the same procedure with the outriggers' full extension procedure, extend all the jack cylinders.

System/Component		Check Point	Pre-operational Inspection	Periodic Inspection	
				100 hrs	1 month
Steering system	Steering wheel	Operation (play, looseness, vibration, etc.)	●	●	
		External appearance		●	
		Orbitrol oil leaks		●	
	Steering system hydraulic circuit	Oil leaks and damage to hydraulic circuit	●	●	
		Steering shift function		●	
	Steering pump, steering cylinder	External appearance		●	
		Oil leaks		●	
	Tie rod	Bending, binding	●	●	
Emergency steering pump	Function	●	●		
Brake system	Service brake pedal	Play, clearance between pedal and floor plate when depressed	●	●	
		Operation of stop lamp		●	
		Performance and function of brake	●	●	
	Hose, piping	Oil leaks, damage, deterioration, loosened support	●	●	
	Brake	Fluid level, air and oil leaks	●	●	
		Check pads for wear			*1
	Air tank	External appearance		●	
		Check for condensation	●	●	
	Parking brake	External appearance		●	
		Operation, brake condition	●	●	
		Clearance between disc and pads			*3
		Check strokes of chamber			*3
	Air pressure gauge warning device	Function of brake fluid level warning device	●	●	
		Function of low air pressure warning device	●	●	
Traveling system	Axle	Oil leaks		●	
		Clean air breather		●	
	Wheel	Air pressure in tires	●	●	
		Rips, damage, unusual wear on tires	●	●	
		Loosened wheel nuts			*1
		Damaged rim side rings and wheels		●	
		Loosened wheel bearings		●	
Shock absorber	Mounting/joint portion	Loosened axle mounting, damage		●	
	Suspension lock unit	Operation, oil leaks		●	
		External appearance		●	
		Eject air from cylinders		●	

*1: Every 250 hrs or every 3 months

*2: Every 500 hrs

*3: Every 1000 hrs or once a year

Full Version Available

Tadano TR-500XL-3 Rough Terrain Crane Operator Manual

Tadano TR-500XL-3 rough terrain crane operator manual covering controls, safe operation, setup and daily checks. 2 PDF files, English. Instant PDF download.

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